

REMARKS

Claims 1-12 remain in this application. Claims 5 and 8 have been amended to be consistent with claims 1 and 12 to include that passage aperture (or means) for limiting the passage of the charged-particle beam is located between the charged-particle source and the scanning deflector

The Examiner has rejected the claims as obvious over Kakibayashi in view of Kokubo both of which relate to transmission electron microscopes. Applicants respectfully traverse these rejections.

The characteristic feature of the present invention is in a scanning type charged-particle microscope (an SEM) having an annular aperture positioned between the charged-particle source and the scanning deflector in order to improve resolving power while simultaneously making the depth of focus large. As noted above, this specific location of the aperture is now a limitation in all of the independent claims.

The Examiner uses Kakibayashi as his primary reference. The Examiner contends that all of the limitations of claim 1 are present except for the annular aperture being located between the charged-particle source and the scanning deflector. As the Examiner, no doubt recognizes, the aperture in this transmission electron microscope (TEM) is below the sample, between it and the detector. As previously pointed out to the Examiner the use of an annular aperture in a TEM is for a different purpose than in the claimed SEM. The annular aperture used in the SEM is new and produces the particularly advantageous effect of higher resolution and increased depth of focus not found in a TEM.

The Examiner contends that it would be obvious to modify Kakibayashi based on the teaching of Kokubo. However, significant differences in these two references suggest just the opposite. The Examiner indicates that element L in Fig.1 of Kokubo is a scanning deflector. This is incorrect, element L is a lens. Thus, Fig. 1 shows no scanning but simply focus on a point. Scanning in two dimensions is an essential feature of the SEM of the present invention.

Fig. 2 is a different embodiment and does not use the annular aperture of Fig. 1. Both focus on a point and do not do two-dimensional scanning.

Thus, in neither of these cases of the prior art (Fig. 1 or Fig. 2), nor in the case of Fig. 3 of this reference, is there any two-dimensional (raster) scanning on the sample disclosed. In each case the object is to focus the beam to a point. This arrangement in a TEM does not need the high resolution and depth of focus obtained by the claimed arrangement in an SEM. Depth of focus, for example, becomes important because of scanning over a larger area of a surface that may not be planar.

Applicants see no teaching or suggestion from these figures of this reference of moving the aperture in Kakibayashi to a position on the other side of a specimen, let alone to the specifically claimed location. There is simply no reason to do so. For one thing, this would destroy the operation of Kakibayashi, who has a purpose in having his aperture where it is. Furthermore, following the teaching of Kokubo, if one did move the aperture, he would put it at the location of the lens 21 (even if L in Fig. 1 did represent a scanning deflector, the teaching would be to place the annular disk at the deflector, not between it and the charged particle source).

It is thus clear that there is no motivation obtained from the references to make such a change. Only Applicants' specification teaches this arrangement and the reasons for using it. Thus, it is believed that all claims remaining in this application are in condition for allowance, prompt notice is respectfully solicited.

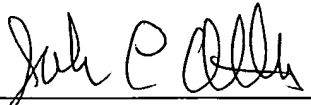
The Examiner is invited to contact the undersigned to discuss any matter concerning this application.

The Examiner is requested, after reviewing this response to contact the undersigned to discuss any remaining issues in this application.

The Office is authorized to charge any additional fees or credit any overpayment under 37 C.F.R. § 1.16 or 1.17 to Deposit Account No. 11-0600.

Respectfully submitted,

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